

START 9613455.2953

0044922

B07KQ4-DAT-233

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator Jonathan G. Lucas

Company Contact Frank W. Gustafson

Telephone 509-376-1736

Project Designation/Sampling Locations North Slope ERA-
Homestead Cistern

Collection Date 2-10-93

Ice Chest No. RM#44

Field Logbook No. EFL-1031

Bill of Lading/Airbill No. 253695322 /

Offsite Property No. W93-0-0190 #49

Method of Shipment Emery

Shipped to Data Chem Salt Lake City, UT

Possible Sample Hazards/Remarks None

Sample Identification

B07KQ4 Soil- consists of 1- 250 ml aG and 3- 120 ml ag sample containers.

☐ Field Transfer of Custody

Chain of Possession

(Sign and Print Names)

Relinquished By	Date	Time	Received By	Date	Time
<i>Jonathan G. Lucas</i>	2-12-93	1104	<i>Frank W. Gustafson</i>	2-13-93	1000

Final Sample Disposition

Disposal Method:


Disposed by:

Date/Time:

Comments:



9613455.2954

 Westinghouse Hanford Company		NONCONFORMANCE REPORT			1. Page <u>1</u> of <u>1</u>	2. Preprinted No. 051181 QA Log No. EQA-92-117
3. P. O., W. O., or Job Control No. N/A	4. System/End Use N/A	5. Item/Material N/A	6. Dwg./Spec./Other No. N/A	7. Rev N/A		
8. Program/Project/Other North Slope Expedited Response Action			9. Safety Class N/A	10. ASME Code Items <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, notify authorized inspector)		
11. Supplier Name/Address Data Chem 960 West Levoy Drive Salt Lake City, UT 84123-2547				12. Notification of Potential Occurrence Required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
13. Code: Lot/Heat/Serial N/A	14. Lot Size N/A	15. Sample N/A	16. Qty. Acc. N/A	17. Inspection Criteria <input type="checkbox"/> Dwg. <input type="checkbox"/> Spec. <input type="checkbox"/> Insp. Plan <input checked="" type="checkbox"/> Other <u>WHC-SD-EN-AP-099, Re</u>		
18. Item	19. Description of Nonconformance (list serial no. where applicable)			22. Disposition, Justification, and Instructions		
1.	North Slope Expedited Response Action Sampling Plan, WHC-SD-EN-AP-099, Rev. 1 specified the phosphorus pesticide analysis method to be SW-846/8190. The actual analytical method is SW-846/8140 which the analytical lab utilized in the phosphorus pesticide analysis.			Accept lab sample method from data chem. Error in WHC Sample Plan, WHC-SD-EN-AP-099, Rev. 1 laboratory method was not correct. Change table 2 page 7 line "Phosphorus pesticides" second column to SW-846/8140		

20. Originator's Signature <i>C. L. Menley</i>		Date 12/8/92		23. Design Document Change Required? <input type="checkbox"/> Yes, Doc. No. _____ <input type="checkbox"/> No	
21. Cognizant QA Manager's Signature <i>[Signature]</i>		Date 12-22-92		24. Corrective Action Required? <input type="checkbox"/> Yes, No. _____ <input type="checkbox"/> No	
Disp. App.	25. Cognizant Engineer <i>C. L. Menley</i>	Date 12/8/92	26. Technical Rep.	Date	Signature/Org.
	QA Engineer <i>[Signature]</i>	Date 12/8/92	Signature/Org.	Date	Signature/Org.
Close	27. <input checked="" type="checkbox"/> Accept <input type="checkbox"/> Reject <input type="checkbox"/> Follow on NCR <i>[Signature]</i> 12/21/92 QA/C Personnel Date				

507KQ4
5-92 E-1 0367

REC-11-11pv

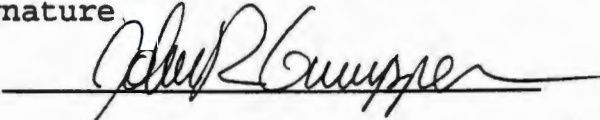
SDG NARRATIVE
SEMIVOLATILE FRACTION

CASE NO. WHC41

SDG NO. WHCO41

SAMPLE NO.(s) for semivolatile analysis: B07KQ4, B07KQ4MS,
B07KQMSD.Westinhouse-Hanford Corporation
DATACHEM LABORATORIES

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.


John R. Gumper, Section Manager date 3-16-93

- I. 1. Case WHC41: DataChem Laboratories has received a total of one soil sample for Case WHC41. This report includes data for the samples listed above which have been assigned the SDG designation WHCO41. DataChem Laboratories expects to be paid for all analyses listed above.
- I. 2. Semivolatile Analysis: All samples in this SDG were analyzed and reported for the BNA fraction using the soil protocol specified in the SOW 3/90 and the next seven revisions (7/91). All of the surrogate recoveries and internal standard area responses met the required QC criteria. No dilutions were necessary, and all samples were extracted and analyzed within the holding times.

- I. 3. Matrix Spike and Matrix Spike Duplicate Analyses
The matrix spike and matrix spike duplicate analyses were performed on sample B07KQ4 according to the protocol listed in the SOW. Recoveries and reproducibility were within the expected ranges. The recoveries of 2,4-dinitrotoluene were slightly above the stated QC limits.

Case Narrative Authorized by:

John R. Lempert date 3-16-93

**SDG NARRATIVE
PESTICIDE/PCB ANALYSIS**

CASE NUMBER: WHC41

SDG: WHCO41

SAMPLE NUMBERS FOR PESTICIDE/PCB ANALYSIS:

B07KQ4, B07KQ4MS, B07KQ4MSD.

EPA-CLP CONTRACT NO.: 3534

DATAChem LABORATORIES

- I. SDG WHCO41. DataChem Laboratories received one soil sample for case WHC41 which was assigned sample delivery group WHCO41.
- II. Pesticide/PCB Analysis.
1. The Pesticide/PCB analysis was contracted to be analyzed and reported according to the 3/90 EPA-CLP statement of work.
 2. All of the contract requirements for standardization were met on both columns.
 3. The instrument blank PIBLKA3, as integrated by the computer, was found to contain endosulfan sulfate at a level greater than half of the CRQL. However, the integrated area did not resemble a peak. The integration for this analyte was altered to include only the area of the peak. The resulting peak area was less than the area reject for the integration method employed. The original and reintegrated chromatograms and data system printouts are provided in this data package, along with some chromatograms in support of the alterations made.
- III. Matrix Spike and Matrix Spike Duplicate Analyses.
1. The soil matrix spike and matrix spike duplicate analyses were performed on sample B07KQ4.
 2. The "X" qualifier was used to flag the results of 4,4'-DDE and endrin aldehyde in the spiked samples. The flag indicates that the detection of these analytes may be due to breakdown of the spiked compounds endrin and 4,4'-DDT. These compounds may not have been extracted from the sample matrix.
- IV. Diskette deliverable.
1. A diskette deliverable was prepared containing the analytical data in the "agency standard" format as specified in Exhibit H of the USEPA Statement of Work, OLM01.8.
 2. The diskette deliverable was not checked by the Computer Compliance Screening (CCS) software provided by the EPA because this software was not working at the time this deliverable was prepared. However, known structural

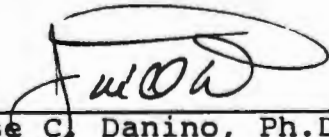
defects were corrected in the disk files.

- V. Pesticide Abbreviations. The abbreviations used by the computer are summarized below:

TOX for Toxaphene
HEPT EPOX for Heptachlor Epoxide
ENDO I for Endosulfan I
ENDO II for Endosulfan II
END ALD for Endrin Aldehyde
G-CHLOR for Gamma Chlordane
A-CHLOR for Alpha Chlordane
ENDO SULF for Endosulfan Sulfate
END KET for Endrin Ketone
DCB for Decachlorobiphenyl
TCX for Tetrachloro-m-xylene
METHOX for Methoxychlor
HEPTA for Heptachlor
G-BHC for Gamma-BHC
A-BHC for Alpha-BHC
B-BHC for Beta-BHC
D-BHC for Delta-BHC

- VI. Certification.

I certify that this data package is in compliance with the terms and conditions of the contract both technically and for completeness except for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee and verified by the following signature.


Jose C. Danino, Ph.D. 3-18-93
Pesticide Section Manager Date

9613455.2960

1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07KQ4

Lab Name: DATA CHEM LABS Contract: 3534

Lab Code: DATA C Case No.: WHC41 SAS No.: _____ SDG No.: WHCO41

Matrix: (soil/water) SOIL Lab Sample ID: CLP12236

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ZY14CLP36

Level: (low/med) LOW Date Received: 02/13/93

% Moisture: 14 decanted: (Y/N) N Date Extracted: 02/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/01/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl) Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-Di-n-Propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)Methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethyl Phthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	380	U

5

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KQ4

Lab Name: DATA CHEM LABS Contract: 3534

Lab Code: DATA C Case No.: WHC41 SAS No.: _____ SDG No.: WHCO41

Matrix: (soil/water) SOIL Lab Sample ID: CLP12236

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ZY14CLP36

Level: (low/med) LOW Date Received: 02/13/93

% Moisture: 14 decanted: (Y/N) N Date Extracted: 02/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/01/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

Q

CAS NO.	COMPOUND		
51-28-5-----	2,4-Dinitrophenol	930	U
100-02-7-----	4-Nitrophenol	930	U
132-64-9-----	Dibenzofuran	380	U
121-14-2-----	2,4-Dinitrotoluene	380	U
84-66-2-----	Diethylphthalate	380	U
7005-72-3-----	4-Chlorophenyl-phenylether	380	U
86-73-7-----	Fluorene	380	U
100-01-6-----	4-Nitroaniline	930	U
534-52-1-----	4,6-Dinitro-2-Methylphenol	930	U
86-30-6-----	N-Nitrosodiphenylamine (1)	380	U
101-55-3-----	4-Bromophenyl-phenylether	380	U
118-74-1-----	Hexachlorobenzene	380	U
87-86-5-----	Pentachlorophenol	930	U
85-01-8-----	Phenanthrene	380	U
120-12-7-----	Anthracene	380	U
86-74-8-----	Carbazole	380	U
84-74-2-----	Di-n-Butylphthalate	100	BJ
206-44-0-----	Fluoranthene	380	U
129-00-0-----	Pyrene	380	U
85-68-7-----	Butylbenzylphthalate	380	U
91-94-1-----	3,3'-Dichlorobenzidine	380	U
56-55-3-----	Benzo (a) Anthracene	380	U
218-01-9-----	Chrysene	380	U
117-81-7-----	bis (2-Ethylhexyl) Phthalate	380	U
117-84-0-----	Di-n-Octyl Phthalate	380	U
205-99-2-----	Benzo (b) Fluoranthene	380	U
207-08-9-----	Benzo (k) Fluoranthene	380	U
50-32-8-----	Benzo (a) Pyrene	380	U
193-39-5-----	Indeno (1,2,3-cd) Pyrene	380	U
53-70-3-----	Dibenz (a,h) Anthracene	380	U
191-24-2-----	Benzo (g,h,i) Perylene	380	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07KQ4

Lab Name: DATA CHEM LABS Contract: 3534

Lab Code: DATA C Case No.: WHC41 SAS No.: _____ SDG No.: WHCO41

Matrix: (soil/water) SOIL Lab Sample ID: CLP12236

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ZY14CLP36

Level: (low/med) LOW Date Received: 02/13/93

% Moisture: 14 decanted: (Y/N) N Date Extracted: 02/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/01/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 26

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.	ALDOL CONDENSATION PRODUCT	8.80	120	J
2.	ALDOL CONDENSATION PRODUCT	9.50	180	J
3.	ALDOL CONDENSATION PRODUCT	9.67	1900	ABJ
4.	UNKNOWN HYDROCARBON	9.95	110	J
5.	ALDOL CONDENSATION PRODUCT	10.30	740	ABJ
6.	ALDOL CONDENSATION PRODUCT	10.50	350	ABJ
7.	ALDOL CONDENSATION PRODUCT	11.20	480	ABJ
8.	ALDOL CONDENSATION PRODUCT	11.55	660	ABJ
9.	ALDOL CONDENSATION PRODUCT	12.38	140	J
10. 57-10-3	HEXADECANOIC ACID	24.98	190	JN
11.	ALKANE @ C23	28.37	150	J
12.	HEXANEDIOIC ACID, C8 ESTER	29.28	210	BJ
13.	ALKANE @ C25	30.13	330	J
14.	ALKANE @ C25	30.47	210	J
15.	UNKNOWN LONG-CHAIN HYDROCARB	30.47	110	J
16.	ALKANE @ C27	32.28	460	J
17.	ALKANE @ C28	33.62	130	J
18.	ALKANE @ C29	35.23	1400	J
19.	ALKANE @ C30	37.17	140	J
20.	ALKANE @ C31	38.60	97	J
21.	ALKANE @ C32	39.55	1000	J
22.	UNKNOWN LONG-CHAIN HYDROCARB	39.77	300	J
23.	UNKNOWN POLYCYCLIC HYDROCARB	40.68	160	J
24.	UNKNOWN POLYCYCLIC HYDROCARB	41.80	260	J
25.	UNKNOWN POLYCYCLIC HYDROCARB	43.07	160	J
26.	UNKNOWN POLYCYCLIC HYDROCARB	48.68	320	J

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KQ4

Lab Name: DATACHEM LABORATORIES

Contract: 3534

Lab Code: DATAC

Case No. WHC41 SAS No.:

SDG No.: WHCO41

Matrix: (soil/water) SOIL

Lab Sample ID: CLP-12236

Sample wt/vol: 30.0 (g/ml) G

Lab File ID:

% Moisture: 14 decanted: (Y/N) N

Date Received: 2/13/93

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 2/22/93

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 3/12/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg) UG/KG	Q
319-84-6-----	alpha-BHC	2.0	U
319-85-7-----	beta-BHC	2.0	U
319-86-8-----	delta-BHC	2.0	U
58-89-9-----	gamma-BHC(Lindane)	2.0	U
76-44-8-----	Heptachlor	2.0	U
309-00-2-----	Aldrin	2.0	U
1024-57-3-----	Heptachlor epoxide	2.0	U
959-98-8-----	Endosulfan I	2.0	U
60-57-1-----	Dieldrin	1.2	JP
72-55-9-----	4,4'-DDE	3.8	U
72-20-8-----	Endrin	3.8	U
33213-65-9----	Endosulfan II	3.8	U
72-54-8-----	4,4'-DDD	1.1	JP
1031-07-8-----	Endosulfan sulfate	3.8	U
50-29-3-----	4,4'-DDT	4.5	
72-43-5-----	Methoxychlor	2.5	JPB
53494-70-5----	Endrin ketone	0.47	JP
7421-36-3-----	Endrin aldehyde	3.8	U
5103-71-9-----	alpha-Chlordane	2.0	U
5103-74-2-----	gamma-Chlordane	2.0	U
8001-35-2-----	Toxaphene	200.	U
12674-11-2----	Aroclor-1016	38.	U
11104-28-2----	Aroclor-1221	78.	U
11141-16-5----	Aroclor-1232	38.	U
53469-21-9----	Aroclor-1242	38.	U
12672-29-6----	Aroclor-1248	38.	U
11097-69-1----	Aroclor-1254	38.	U
11096-82-5----	Aroclor-1260	38.	U

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ANALYTICAL REPORT

Form ARF-AL

Page 1 of 3

Part 1 of 2

MAR 05 1993

Date

Agency Identification Number SX-0050-GJ

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley



FAX (509) 372-2106
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993

Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8150

Date(s) of Analysis March 02, 1993

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	2,4-D µg/g	2,4-DB µg/g	2,4,5-T µg/g	2,4,5-TP (p,p') µg/g	Delapou µg/g	Dicamba µg/g	Dichloroprop µg/g	Dinoseb µg/g
QC-1846-1	QC-1846-1	SOIL	1.01	ND*	2.6	2.4	ND*	ND*	ND*	ND*
BL-1846-1	BL-1846-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4	CLP 12236	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4MS	CLP 12236MS	SOIL	1.12	ND*	0.44	0.43	ND*	ND*	ND*	ND*
B07KQ4MSD	CLP 12236MSD	SOIL	1.16	ND*	0.49	0.47	ND*	ND*	ND*	ND*
* Limit of Detection			.1	.5	.05	.05	.2	.05	.1	.1

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
() Parameter between LOD and LOQ.

Analyst: John Meikle

Reviewer: Guangyue Liu

Laboratory Supervisor: Jose C. Danino

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

9613455.2965



ANALYTICAL REPORT

Form ARF-AL

Page 2 of 3

Part 2 of 2

MAR 05 1993

Date _____

Agency Identification Number SX-0050-GJAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley

FAX (509) 372-2106
 Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8150Date(s) of Analysis March 02, 1993

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	MCPA µg/g	MCPB µg/g	DCAA µg/g						
QC-1846-1	QC-1846-1	SOIL	ND*	ND*	.54						
BL-1846-1	BL-1846-1	SOIL	ND*	ND*	.64						
B07KQ4	CLP 12236	SOIL	ND*	ND*	0.59						
B07KQ4MS	CLP 12236MS	SOIL	ND*	ND*	0.57						†
B07KQ4MSD	CLP 12236MSD	SOIL	ND*	ND*	0.58						†
* Limit of Detection			25	25	SURR						

† See comment on last page.
 ND Parameter not detected.
 NR Parameter not requested.

** See comment on last page.
 () Parameter between LOD and LOQ.



ANALYTICAL REPORT

Form ARF-C

Page 3 of 3

MAR 05 1993

Date _____

Agency Identification Number SX-0050-GJ

General Set Comments

Samples were spiked with 0.5 µg/g with 2,4-dichlorophenylacetic acid as surrogate.

Laboratory control sample, matrix spike and matrix spike duplicate were spiked at 1.0 µg/g with 2,4-D and at 0.5 µg/g with 2,4,5-T and 2,4,5-TP.

Sample Comments

Laboratory
Number

-- Comment --

CLP 12236MS	2,4-D quantitation from DB5; interference on DB1701
CLP 12236MSD	2,4-D quantitation from DB5; interference on DB1701



ANALYTICAL REPORT

Form ARF-AL

Page 1 of 3

Part 1 of 2

AMENDED

Date 5-26-93Agency Identification Number SX-0050-GJAccount No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

FAX (509) 372-2106
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8150Date(s) of Analysis March 02, 1993

Analytical Results

Field Sample Number	Laboratory Sample Number	Sample Type	2,4-D µg/g	2,4-DB µg/g	2,4,5-T µg/g	2,4,5-TP (silvex) µg/g	Delapron µg/g	Dicamba µg/g	Dichloroprop µg/g	Dinoseb µg/g
QC-1846-1	QC-1846-1	SOIL	1.01	ND*	0.51	0.48	ND*	ND*	ND*	ND*
BL-1846-1	BL-1846-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4	CLP 12236	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4MS	CLP 12236MS	SOIL	1.12	ND*	0.44	0.43	ND*	ND*	ND*	ND*
B07KQ4MSD	CLP 12236MSD	SOIL	1.16	ND*	0.49	0.47	ND*	ND*	ND*	ND*
Limit of Detection			1	5	0.05	0.03	2	0.5	1	

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
() Parameter between LOB and LOQ.

Analyst: John Herale

Reviewer: Guanyue Liu

Laboratory Supervisor: Jose C. Danino





ANALYTICAL REPORT

Form ARF-C

Page 3 of 3

Date _____

Agency Identification Number SX-0050-GJ

General Set Comments

Samples were spiked with 0.5 µg/g with 2,4-dichlorophenylacetic acid as surrogate.

Laboratory control sample, matrix spike and matrix spike duplicate were spiked at 1.0 µg/g with 2,4-D and at 0.5 µg/g with 2,4,5-T and 2,4,5-TP.

This ammended report has errors corrected in found values for two compounds in the quality control sample.

Sample Comments

Laboratory
Number

-- Comment --

CLP 12236MS	2,4-D quantitation from DB5; interference on DB1701
CLP 12236MSD	2,4-D quantitation from DB5; interference on DB1701

9613455.2970



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

Page 1 of 2

Part 1 of 1

Date _____

Agency Identification Number SX-0050-EJAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley



Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analytical Results

Parameter Name	Field Number	Lab Number	QC-1844-1	QC-1844-1	BL-1844-1	BL-1844-1	B07KQ4	CLP 12236	B07KQ4MS	CLP 12236MS	Limit of Detection
Analysis Date	Units										
Method	Prep Method										
Total Petroleum Hydrocarbons											
03/08/1993	µg/g		110		ND*		ND*		150		10
418.1 [1]	3550 [2]										

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

* Analyzes completed on or before this date.

** Parameter not analyzed (See comment page).

() Parameter between LOD and LOQ.

[] Method Reference (See comments page.)

Analyst: Alex J. PearceReviewer: David W. Thomas
Suzanne W. Bove for MPB
 Laboratory Supervisor: Michael P. Beesley

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
 A Sorenson Company

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9618455.2971



ENVIRONMENTAL SOIL REPORT

Form EPRS-C

Page 2 of 2

Date _____

Agency Identification Number SX-0050-EJ

General Set Comments

Additional QC data with S93-0091-EI.

Sample Comments

Laboratory
Number

-- Comment --

QC-1844-1
CLP 12236MS

QC target value = 123
Spike added = 163

Method Index

-- Method Reference --

- [1] EPA-600/4-79-020 "Methods for Chemical Analysis of Water and Wastes", March 1983 (Modified for use with soils.)
- [2] SW-846 "Test Methods for Evaluating Solid Waste", 3rd Edition, November 1986.

9613455.2972



ANALYTICAL REPORT

Form ARF-AL

Page 1 of 5

Part 1 of 4

Date MAR 05 1993Agency Identification Number SX-0050-HJAccount No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley



FAX (509) 372-2106
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8141Date(s) of Analysis February 24, 1993

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Azinphos Methyl ug/kg GC/FPD	Boister ug/kg GC/FPD	Chlorpyrifos ug/kg GC/FPD	Coumaphos ug/kg GC/FPD	Demeton-S ug/kg GC/FPD	Diazinon ug/kg GC/FPD	Dichlorvos ug/kg GC/FPD	Disulfoton ug/kg GC/FPD
QC-1847-1	QC-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	54.1
BL-1847-1	BL-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4	CLP 12236	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4MS	CLP 12236MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	61.5
B07KQ4MSD	CLP 12236MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	59.4
* Limit of Detection			67	67	33	167	33	33	17	17

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
() Parameter between LOD and LOQ.

Analyst: Vicki Hoe-Lin Tsai

Reviewer: *Jose C. Danino*

Laboratory Supervisor: Jose C. Danino

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

9613455.2973



ANALYTICAL REPORT

Form ARF-AL

Page 2 of 5

Part 2 of 4

Date MAR 05 1993Agency Identification Number SX-0050-HJAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley

FAX (509) 372-2106
 Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8141Date(s) of Analysis February 24, 1993

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Ethioprop ug/kg GC/PPD	Fenitrothion ug/kg GC/PPD	Fenthion ug/kg GC/PPD	Merphos ug/kg GC/PPD	Hevinphos ug/kg GC/PPD	Naled ug/kg GC/PPD	Parathion methyl ug/kg GC/PPD	Phorate ug/kg GC/PPD
QC-1847-1	QC-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	62.4	ND*
BL-1847-1	BL-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4	CLP 12236	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4MS	CLP 12236MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	76.2	ND*
B07KQ4MSD	CLP 12236MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	76.3	ND*
* Limit of Detection			333	167	67	67	67	67	17	17

† See comment on last page.
 ND Parameter not detected.
 NR Parameter not requested.

** See comment on last page.
 () Parameter between LOD and LOQ.

9613455.2974



ANALYTICAL REPORT

Form ARF-AL

Page 3 of 5

Part 3 of 4

Date MAR 05 1993Agency Identification Number SX-0050-HJAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley

FAX (509) 372-2106
 Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8141Date(s) of Analysis February 24, 1993

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Ronnel ug/kg GC/PPD	stirophos ug/kg GC/PPD	Dimethoate ug/kg GC/PPD	EPN ug/kg GC/PPD	Malathion ug/kg GC/PPD	Monocrotophos ug/kg GC/PPD	Parathion ug/kg GC/PPD	SULPOTEP ug/kg GC/PPD
QC-1847-1	QC-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
BL-1847-1	BL-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4	CLP 12236	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4MS	CLP 12236MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4MSD	CLP 12236MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			17	33	167	33	67	167	17	333

↑ See comment on last page.
 ND Parameter not detected.
 NR Parameter not requested.

** See comment on last page.
 () Parameter between LOD and LOQ.

9613455.2975



ANALYTICAL REPORT

Form ARF-AL

Page 4 of 5

Part 4 of 4

Date MAR 05 1993Agency Identification Number SX-0050-HJAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley

FAX (509) 372-2106
 Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8141Date(s) of Analysis February 24, 1993

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	TEPP ug/kg GC/PPD	TPP ug/kg GC/PPD						
QC-1847-1	QC-1847-1	SOIL	ND*	311.4						
BL-1847-1	BL-1847-1	SOIL	ND*	479.1						
B07KQ4	CLP 12236	SOIL	ND*	230.8						
B07KQ4MS	CLP 12236MS	SOIL	ND*	338.8						
B07KQ4MSD	CLP 12236MSD	SOIL	ND*	325.4						
* Limit of Detection			17	33						

† See comment on last page.
 ND Parameter not detected.
 NR Parameter not requested.

** See comment on last page.
 () Parameter between LOD and LOQ.

9613455.2976



ANALYTICAL REPORT

Form ARF-C

Page 5 of 5

Date MAR 05 1993
Agency Identification Number SX-0050-HJ

General Set Comments

Method blank, LCS, matrix spike, matrix spike duplicate (using CLP12236) and field sample were spiked at 333 ug/kg of surrogate TPP. the matrix spike and matrix spike duplicate were spiked with 67 ug/kg of phorate, disulfoton and parathion-methyl.

9613455.2977



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

Page 1 of 2

Part 1 of 1

Date _____

Agency Identification Number SX-0050-FJAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley



Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analytical Results

Parameter Name	Field Number	Lab Number	B07KQ4	CLP 12236						Limit of Detection
Fluoride (F)										
02/26/1993										1.
300.0 [1]										
Chloride (Cl)										1.
02/26/1993										
300.0 [1]										
Phosphate (PO ₄ -P)										2.
02/26/1993										
300.0 [1]										
Sulfate (SO ₄)										1.
02/26/1993										
300.0 [1]										
Nitrates (NO ₃ -N + NO ₂ -N)										1.
02/18/1993										
353.2 [1]										
Chromium VI										10
02/24/1993										
7196 [2] 3060 [2]										

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

* Analyses completed on or before this date.

** Parameter not analyzed (See comment page).

() Parameter between LOD and LOQ.

[] Method Reference (See comments page.)

RECORD COPY

Analyst: Debbie A. Christensen

Reviewer: Shawn A. Ludlow

Laboratory Supervisor: Norman K. Christensen

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
 A Sorenson Company



ENVIRONMENTAL SOIL REPORT

Form EPRS-C

Page 2 of 2

Date _____

Agency Identification Number SX-0050-EJ**General Set Comments**

CR VI: A color interference was present at time of analysis.

Method Index**-- Method Reference --**

- [1] EPA-600/4-79-020 "Methods for Chemical Analysis of Water and Wastes", March 1983 (Modified for use with soils.)
- [2] SW-846 "Test Methods for Evaluating Solid Waste", 3rd Edition, November 1986.

9613455.2979

DATA CHEM LABORATORIES
960 WEST LEVOY DRIVE
SALT LAKE CITY, UTAH 84123



Company: WESTINGHOUSE HANFORD

Case #: WHC41 SDG: WHCI41 DCL SET ID: SX-0050 AJ-CJ

Fraction: Inorganic

Client Sample #	Lab Sample #	EPA Sample #	Matrix	Analyzed for
B07KQ4	CLP 12236	M12236	SOIL	P,F,CV
MATRIX DUPL	CLP 12236	M12236D	SOIL	P,F,CV
MATRIX SPIKE	CLP 12236	M12236S	SOIL	P,F,CV

RECORD COPY

Analysis Key
P ICP
F GFAA
CV Mercury
AS Cyanide

Please read this Case Narrative before screening this case

SDG: WHCI41

Case: WHC41

Please note that this case was digested using the Microwave Digestion Procedure found in Exhibit D, Section III,C of ILM01.2. Please note on Form 13 that the weights and volumes are different than those of Conventional Hood Digestion, as per Contract. All method flags using this digestion procedure have "_M" added to signify this digestion.

All values in this deliverable are calculated by the computer software. Variations from form to form in the last significant digit by + or - 1, are caused by the computer software. This occurs most often in forms 1, 5a, 5b, 6, 8 and 9.

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

M12236

Lab Name: DataChem Laboratories

Contract: WHC

Lab Code: DATAC

Case No.: WHC41

SAS No.:

SDG No.: WHC141

Matrix (soil/water): SOIL

Lab Sample ID: CLP12236

Level (low/med): LOW

Date Received: 02/13/93

% Solids: 85.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7410	-		P
7440-36-0	Antimony	10.5	U	N	P
7440-38-2	Arsenic	3.4	-	NS	FM
7440-39-3	Barium	128	-	N	P
7440-41-7	Beryllium	0.23	U		P
7440-43-9	Cadmium	0.70	U		P
7440-70-2	Calcium	4100	-		P
7440-47-3	Chromium	16.8	-	N	P
7440-48-4	Cobalt	9.5	B		P
7440-50-8	Copper	40.7	-	N*	P
7439-89-6	Iron	39000	-	*	P
7439-92-1	Lead	216	-		FM
7439-95-4	Magnesium	3690	-		P
7439-96-5	Manganese	422	-	N	P
7439-97-6	Mercury	0.12	U	N	CV
7440-02-0	Nickel	23.4	-	*	P
7440-09-7	Potassium	1550	-		P
7782-49-2	Selenium	0.35	B		FM
7440-22-4	Silver	0.70	U		P
7440-23-5	Sodium	175	B		P
7440-28-0	Thallium	0.18	B	W	FM
7440-62-2	Vanadium	45.3	-		P
7440-66-6	Zinc	144	-	N*	P
	Cyanide		-		NR

Color Before: BROWN

Clarity Before:


Texture: MEDIUM

Color After: COLORLESS

Clarity After:

Artifacts:

Comments:

FORM OF PAYMENT				SERVICES **				INTERNATIONAL			
Check <input type="checkbox"/> GBL <input type="checkbox"/> FCCOD <input type="checkbox"/>				EMERY WORLDWIDE				A CF Company			
Bill to Shipper <input checked="" type="checkbox"/> Bill to Consignee <input type="checkbox"/> Third Party Billing <input type="checkbox"/>				UNITED STATES / CANADA <input type="checkbox"/> Same Day (Extra Charges) <input type="checkbox"/> AM <input type="checkbox"/> PM <input type="checkbox"/> Second Day <input checked="" type="checkbox"/> Saturday Delivery				Express <input type="checkbox"/> Standard Plus <input type="checkbox"/> Preferred <input type="checkbox"/> Standard <input type="checkbox"/> Business Documents <input type="checkbox"/> Customs Clearance <input type="checkbox"/> Delivery <input type="checkbox"/>			
Shipper's Account Number E 850281585				Date 02-12-98 Origin PSC Shipment Number 253695322 1							
From: WESTINGHOUSE SHIPPING DEPT. (509) 376-6665 U.S. DEPARTMENT OF ENERGY C/O WESTINGHOUSE HANFORD BLDG 1163 2355 STEVENS DRIVE RICHLAND WA				To: JIM JOHNSTON DATA CHEM 960 WEST LEVOY DRIVE SALT LAKE CITY UT				Tariff Dest. Gateway Check to Shipper \$			
Customer's Reference Numbers PD42A W81353 W93-0-0190#4999352				Consignee's Account Number E 84123				EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, fraud and misrepresentation.			
Description 1 ICE CHEST RM#44 SOIL SAMPLES B07KQ4		Dimensions Pcs 1 L 16 W 17 H		Total Pieces 1		Total Weight (In Lbs.) 19		FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)			
Remarks SATURDAY DELIVERY		Zip Ship <input type="checkbox"/>		Mark if Emery Packaging is used Urgent Letter <input type="checkbox"/> Urgent Pack <input checked="" type="checkbox"/>		Declared Value \$		2536953221 			
Shipper's Signature X		Third Party Account Number E		International Customs Value		International Insurance		<div style="font-size: 4em; text-align: center;">SLC-SA</div> <div style="text-align: right; font-size: 2em;">2167</div> <div style="text-align: center; font-weight: bold;">Terms and Conditions on Back</div>			
Free Domicile <input type="checkbox"/>		Third Party Billing		Total Transportation Charges		Other Charges/Advance at Origin <input type="checkbox"/> OCAO \$					
Base Charge											

↓
PULL FOR
SHPT.
NO.
TAB

CONSIGNEE - PACKAGE COPY - 4

9613455.2982

FORM DC-1

Golder Associates Inc.

4104-148th Avenue, NE
 Redmond, WA 98052
 Telephone (206) 883-0777
 Fax (206) 882-5498



June 22, 1993

Our ref: 893-1458
 WHC/O/381

Westinghouse Hanford Company
 Hanford Analytical Services Management
 345 Hills, MSIN H4-29
 Richland, Washington 99352

ATTENTION: Ms. Brianna Colley

RE: NORTH SLOPE ERA DATA VALIDATION, TASK ORDER G-93-58, TRANSMITTAL OF
 DATA VALIDATION PACKAGES

Dear Ms. Colley:

Enclosed are six complete analytical data packages including associated data validation documentation for a North Slope ERA sample analyzed by the DataChem laboratory for volatile, semivolatile, chlorinated pesticide/PCB, chlorinated herbicide and phosphate pesticide organic compounds, metals, anions, and total petroleum hydrocarbons.

The data packages included in this shipment are:

- | | |
|------------------|------------------|
| • B07KQ6-DAT-234 | • B07KR4-DAT-232 |
| • B07KQ4-DAT-233 | • B07GM7-DAT-205 |
| • B07KR5-DAT-236 | • B07GP0-DAT-194 |

The validation documentation is located at the front of the data package folder.

Please call if you have any questions.

Sincerely,

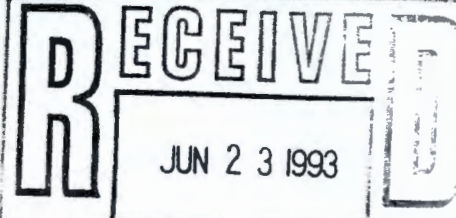
GOLDER ASSOCIATES INC.

Kent M. Angelos
 Project Manager

Donald M. Caldwell
 Project Director

Enclosures

cc: George Henckel, WHC



MEMORANDUM

TO: North Slope ERA Data Validation Project QA Record

VALIDATION DOCUMENTATION
SDLA June 18, 1993FR: Susan Winter, Golder Associates Inc. *[Signature]*

RE: Data Validation Summary for Data Package: B07KQ4-DAT-233

INTRODUCTION

This memo presents the results of data validation on data package B07KQ4-DAT-233 consisting of one (1) soil sample submitted for semivolatile, pesticide/PCB, organochlorine herbicides, organophosphorus pesticides, metals, general chemistry and total recoverable petroleum hydrocarbon analyses. The sample was analyzed by the DataChem laboratory using CLP protocols as applicable, and SW-846 methods. The following table describes the sample validated, sample date and analyses performed.

SAMPLE ID	SAMPLE DATE	BNA	PEST PCB	HERB	PHOS PEST	METALS	GEN. CHEM	TPH
B07KQ4	02/10/93	X	X	X	X	X	X	X

Data validation was conducted in accordance with the WHC statement of work (WHC 1993) and validation procedures (Bechtold 1992) in which twenty percent (20%) of the samples were assigned for validation. The sample in this data set was verified and blank adjusted as summarized below since it was not selected for full data validation.

Attachments 1 through 3 provide a data qualification summary form, copies of the verified laboratory reports, and associated positive blank results.

DATA QUALITY OBJECTIVES

Sample Result Verification. The data package was complete for all requested items and all results were supported in the raw data.

MAJOR DEFICIENCIES

The following presents a summary of the rejected data.

The semivolatile tentatively identified compounds (TICs) identified as aldol condensation products have been rejected (R) since they are suspected laboratory contaminants.

MINOR DEFICIENCIES

The following qualifications were required as a result of the blank adjustment.

Blank Adjustment. The results for all associated blank samples were undetected with the exception of the blanks in the associated parameters listed below.

Semivolatile Organics

- Di-n-butylphthalate and the TIC identified as hexanedioic acid were detected in both sample B07KQ4 and the laboratory blank. Therefore, the associated sample results have been qualified as undetected (U) and the di-n-butylphthalate result was corrected to the CRQL.

Pesticide/PCBs

- Methoxychlor was detected in the associated laboratory blank at a concentration of 6.3 µg/L. Therefore, the methoxychlor result in sample B07KQ4 has been qualified as undetected and the reported value has been corrected to the CRQL.

Metals

- Selenium was detected in the associated laboratory blank at a concentration of 0.241 mg/Kg. Therefore, the beryllium result in sample B07KQ4 has been qualified as undetected (U) since the sample concentration was less than five times the blank concentration.

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Task Order G-93-01-58. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613455.2987

ATTACHMENT 1

DATA QUALIFICATION SUMMARY

DATA QUALIFICATION SUMMARY - FORM B-7

B07KQ4-OAT-233

SDG:	REVIEWER <i>[Signature]</i>	DATE: 6/18/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Semi-VOAs			
D,n-butylphthalate	u	B07KQ4	Present in blank
Ald Condensation Products	R	B07KQ4	Laboratory Contaminant
Hexapetioic Acid (TIC)	u	B07KQ4	Present in blank
Pesticide/PCBs			
Methoxychlor	u	B07KQ4	Present in blank
Organophosphorus Pesticides			
No qualification required			
Organochlorine Herbicides			
No qualification required.			
Metals			
Selenium	u	B07KQ4	Present in blank
Wet Chem			
No qualification required			
TPH-IR			
No qualification required			

9613455.2989

ATTACHMENT 2

VERIFIED DATA SUMMARY

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KQ4

Lab Name: DATA CHEM LABS Contract: 3534

Lab Code: DATA C Case No.: WHC41 SAS No.: SDG No.: WHCO41

Matrix: (soil/water) SOIL Lab Sample ID: CLP12236

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ZY14CLP36

Level: (low/med) LOW Date Received: 02/13/93

% Moisture: 14 decanted: (Y/N) N Date Extracted: 02/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/01/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

108-95-2-----	Phenol	380	U
111-44-4-----	bis(2-Chloroethyl) Ether	380	U
95-57-8-----	2-Chlorophenol	380	U
541-73-1-----	1,3-Dichlorobenzene	380	U
106-46-7-----	1,4-Dichlorobenzene	380	U
95-50-1-----	1,2-Dichlorobenzene	380	U
95-48-7-----	2-Methylphenol	380	U
108-60-1-----	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5-----	4-Methylphenol	380	U
621-64-7-----	N-Nitroso-Di-n-Propylamine	380	U
67-72-1-----	Hexachloroethane	380	U
98-95-3-----	Nitrobenzene	380	U
78-59-1-----	Isophorone	380	U
88-75-5-----	2-Nitrophenol	380	U
105-67-9-----	2,4-Dimethylphenol	380	U
111-91-1-----	bis(2-Chloroethoxy) Methane	380	U
120-83-2-----	2,4-Dichlorophenol	380	U
120-82-1-----	1,2,4-Trichlorobenzene	380	U
91-20-3-----	Naphthalene	380	U
106-47-8-----	4-Chloroaniline	380	U
87-68-3-----	Hexachlorobutadiene	380	U
59-50-7-----	4-Chloro-3-Methylphenol	380	U
91-57-6-----	2-Methylnaphthalene	380	U
77-47-4-----	Hexachlorocyclopentadiene	380	U
88-06-2-----	2,4,6-Trichlorophenol	380	U
95-95-4-----	2,4,5-Trichlorophenol	930	U
91-58-7-----	2-Chloronaphthalene	380	U
88-74-4-----	2-Nitroaniline	930	U
131-11-3-----	Dimethyl Phthalate	380	U
208-96-8-----	Acenaphthylene	380	U
606-20-2-----	2,6-Dinitrotoluene	380	U
99-09-2-----	3-Nitroaniline	930	U
83-32-9-----	Acenaphthene	380	U

5

Verified
Blank adjusted

FORM I SV-1

3/90

9613455.2991

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KQ4

Lab Name: DATA CHEM LABS Contract: 3534

Lab Code: DATA C Case No.: WHC41 SAS No.: _____ SDG No.: WHCO41

Matrix: (soil/water) SOIL Lab Sample ID: CLP12236

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ZY14CLP36

Level: (low/med) LOW Date Received: 02/13/93

% Moisture: 14 decanted: (Y/N) N Date Extracted: 02/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/01/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.

COMPOUND

Q

Q

51-28-5-----	2,4-Dinitrophenol	930	U
100-02-7-----	4-Nitrophenol	930	U
132-64-9-----	Dibenzofuran	380	U
121-14-2-----	2,4-Dinitrotoluene	380	U
84-66-2-----	Diethylphthalate	380	U
7005-72-3-----	4-Chlorophenyl-phenylether	380	U
86-73-7-----	Fluorene	380	U
100-01-6-----	4-Nitroaniline	930	U
534-52-1-----	4,6-Dinitro-2-Methylphenol	930	U
86-30-6-----	N-Nitrosodiphenylamine (1)	380	U
101-55-3-----	4-Bromophenyl-phenylether	380	U
118-74-1-----	Hexachlorobenzene	380	U
87-86-5-----	Pentachlorophenol	930	U
85-01-8-----	Phenanthrene	380	U
120-12-7-----	Anthracene	380	U
86-74-8-----	Carbazole	380	U
84-74-2-----	Di-n-Butylphthalate	380	U
206-44-0-----	Fluoranthene	380	U
129-00-0-----	Pyrene	380	U
85-68-7-----	Butylbenzylphthalate	380	U
91-94-1-----	3,3'-Dichlorobenzidine	380	U
56-55-3-----	Benzo (a) Anthracene	380	U
218-01-9-----	Chrysene	380	U
117-81-7-----	bis (2-Ethylhexyl) Phthalate	380	U
117-84-0-----	Di-n-Octyl Phthalate	380	U
205-99-2-----	Benzo (b) Fluoranthene	380	U
207-08-9-----	Benzo (k) Fluoranthene	380	U
50-32-8-----	Benzo (a) Pyrene	380	U
193-39-5-----	Indeno (1,2,3-cd) Pyrene	380	U
53-70-3-----	Dibenz (a,h) Anthracene	380	U
191-24-2-----	Benzo (g,h,i) Perylene	380	U

380-100-BJ ✓ u

9613455.2992

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07KQ4

Lab Name: DATA CHEM LABS Contract: 3534

Lab Code: DATA C Case No.: WHC41 SAS No.: _____ SDG No.: WHCO41

Matrix: (soil/water) SOIL Lab Sample ID: CLP12236

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ZY14CLP36

Level: (low/med) LOW Date Received: 02/13/93

% Moisture: 14 decanted: (Y/N) N Date Extracted: 02/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/01/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 26

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.	ALDOL CONDENSATION PRODUCT	8.80	120	J
2.	ALDOL CONDENSATION PRODUCT	9.50	180	J
3.	ALDOL CONDENSATION PRODUCT	9.67	1900	ABJ
4.	UNKNOWN HYDROCARBON	9.95	110	J
5.	ALDOL CONDENSATION PRODUCT	10.30	740	ABJ
6.	ALDOL CONDENSATION PRODUCT	10.50	350	ABJ
7.	ALDOL CONDENSATION PRODUCT	11.20	480	ABJ
8.	ALDOL CONDENSATION PRODUCT	11.55	660	ABJ
9.	ALDOL CONDENSATION PRODUCT	12.38	140	J
10. 57-10-3	HEXADECANOIC ACID	24.98	190	JN
11.	ALKANE @ C23	28.37	150	J
12.	HEXANEDIOIC ACID, C8 ESTER	29.28	210	BJ
13.	ALKANE @ C25	30.13	330	J
14.	ALKANE @ C25	30.47	210	J
15.	UNKNOWN LONG-CHAIN HYDROCARB	30.47	110	J
16.	ALKANE @ C27	32.28	460	J
17.	ALKANE @ C28	33.62	130	J
18.	ALKANE @ C29	35.23	1400	J
19.	ALKANE @ C30	37.17	140	J
20.	ALKANE @ C31	38.60	97	J
21.	ALKANE @ C32	39.55	1000	J
22.	UNKNOWN LONG-CHAIN HYDROCARB	39.77	300	J
23.	UNKNOWN POLYCYCLIC HYDROCARB	40.68	160	J
24.	UNKNOWN POLYCYCLIC HYDROCARB	41.80	260	J
25.	UNKNOWN POLYCYCLIC HYDROCARB	43.07	160	J
26.	UNKNOWN POLYCYCLIC HYDROCARB	48.68	320	J

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[Signature]
6/17/93

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KQ4

Lab Name: DATACHEM LABORATORIES

Contract: 3534

Lab Code: DATAC

Case No. WHC41

SAS No.:

SDG No.: WHC041

Matrix: (soil/water) SOIL

Lab Sample ID: CLP-12236

Sample wt/vol: 30.0 (g/ml) G

Lab File ID:

% Moisture: 14 decanted: (Y/N) N

Date Received: 2/13/93

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 2/22/93

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 3/12/93

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.4

Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

Q

319-84-6-----	alpha-BHC	2.0	U
319-85-7-----	beta-BHC	2.0	U
319-86-8-----	delta-BHC	2.0	U
58-89-9-----	gamma-BHC(Lindane)	2.0	U
76-44-8-----	Heptachlor	2.0	U
309-00-2-----	Aldrin	2.0	U
1024-57-3-----	Heptachlor epoxide	2.0	U
959-98-8-----	Endosulfan I	2.0	U
60-57-1-----	Dieldrin	1.2	JP
72-55-9-----	4,4'-DDE	3.8	U
72-20-8-----	Endrin	3.8	U
33213-65-9----	Endosulfan II	3.8	U
72-54-8-----	4,4'-DDD	1.1	JP
1031-07-8-----	Endosulfan sulfate	3.8	U
50-29-3-----	4,4'-DDT	4.5	
72-43-5-----	Methoxychlor	20.25	JPB
53494-70-5----	Endrin ketone	0.47	JP
7421-36-3-----	Endrin aldehyde	3.8	U
5103-71-9-----	alpha-Chlordane	2.0	U
5103-74-2-----	gamma-Chlordane	2.0	U
8001-35-2-----	Toxaphene	200.	U
12674-11-2----	Aroclor-1016	38.	U
11104-28-2----	Aroclor-1221	78.	U
11141-16-5----	Aroclor-1232	38.	U
53469-21-9----	Aroclor-1242	38.	U
12672-29-6----	Aroclor-1248	38.	U
11097-69-1----	Aroclor-1254	38.	U
11096-82-5----	Aroclor-1260	38.	U

Verified
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FORM I PEST

3/90

9613455.2994



ANALYTICAL REPORT

Form ARF-AL

Page 1 of 5

Part 1 of 4

Date MAR 05 1993Agency Identification Number SX-0050-HJAccount No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley



FAX (509) 372-2106
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8141Date(s) of Analysis February 24, 1993

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Azinphos Methyl ug/kg GC/PPD ✓	Bolstar ug/kg GC/PPD ✓	Chlorpyrifos ug/kg GC/PPD ✓	Coumaphos ug/kg GC/PPD ✓	Demeton-S ug/kg GC/PPD ✓	Diazinon ug/kg GC/PPD ✓	Dichlorvos ug/kg GC/PPD ✓	Disulfoton ug/kg GC/PPD ✓
QC-1847-1	QC-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	54.1
BL-1847-1	BL-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4	CLP 12236	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4MS	CLP 12236MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	61.5
B07KQ4MSD	CLP 12236MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	59.4
* Limit of Detection			67	67	33	167	33	33	17	17

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
() Parameter between LOD and LOQ.

verified 6/8/93

Analyst: Vicki Hoe-Lin Tsai

Reviewer: _____

Laboratory Supervisor: Jose C. Danino

RECOMMENDATION

9613455.2995



ANALYTICAL REPORT

Form ARF-AL

Page 2 of 5

Part 2 of 4

Date MAR 05 1993Agency Identification Number SX-0050-HJAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley

FAX (509) 372-2106
 Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8141Date(s) of Analysis February 24, 1993

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Ethoprop ug/kg GC/PPD ✓	Pensulfathion ug/kg GC/PPD ✓	Penthion ug/kg GC/PPD ✓	Merphos ug/kg GC/PPD ✓	Hevinphos ug/kg GC/PPD ✓	Maled ug/kg GC/PPD ✓	Parathion methyl ug/kg GC/PPD ✓	Phorate ug/kg GC/PPD ✓
QC-1847-1	QC-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	62.4	ND*
BL-1847-1	BL-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4	CLP 12236	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4MS	CLP 12236MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	76.2	ND*
B07KQ4MSD	CLP 12236MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	76.3	ND*
* Limit of Detection			333	167	67	67	67	67	17	17

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verified
[Signature]
 6/18/93



ANALYTICAL REPORT

Form ARF-AL

Page 3 of 5

Part 3 of 4

Date MAR 05 1993Agency Identification Number SX-0050-HJAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley

FAX (509) 372-2106
 Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8141Date(s) of Analysis February 24, 1993

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Ronnel ug/kg GC/PPD ✓	stirophos ug/kg GC/PPD ✓	Dimethoate ug/kg GC/PPD ✓	EPN ug/kg GC/PPD ✓	Malathion ug/kg GC/PPD ✓	Monocrotophos ug/kg GC/PPD ✓	Parathion ug/kg GC/PPD ✓	SUFOTEP ug/kg GC/PPD ✓
QC-1847-1	QC-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
BL-1847-1	BL-1847-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4	CLP 12236	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4MS	CLP 12236MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KQ4MSD	CLP 12236MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			17	33	167	33	67	167	17	333

† See comment on last page.
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** See comment on last page.
 () Parameter between LOD and LOQ.

verified
[Signature]
 6/18/93



ANALYTICAL REPORT

Form ARF-AL

Page 4 of 5

Part 4 of 4

Date MAR 05 1993
 Agency Identification Number SX-0050-HJ
 Account No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley

FAX (509) 372-2106
 Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993

Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8141

Date(s) of Analysis February 24, 1993

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	TEPP ug/kg GC/PPD	TEPP ug/kg GC/PPD						
QC-1847-1	QC-1847-1	SOIL	ND*	311.4						
BL-1847-1	BL-1847-1	SOIL	ND*	479.1						
B07KQ4	CLP 12236	SOIL	ND*	230.8						
B07KQ4MS	CLP 12236MS	SOIL	ND*	338.8						
B07KQ4MSD	CLP 12236MSD	SOIL	ND*	325.4						
* Limit of Detection			17	33						

† See comment on last page.
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*revised
 6/15/93*



ANALYTICAL REPORT

Form ARF-AL

Page 1 of 3

Part 1 of 2

AMENDED

Date 5-26-93

Agency Identification Number SX-0050-GJ

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

FAX (509) 372-2106
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993

Date Samples Received at Laboratory February 13, 1993

Analysis

Method of Analysis EPA 8150

Date(s) of Analysis March 02, 1993

Analytical Results

[illegible]

† See comment on last page.
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Verified
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Wito 6/16/93

Analyst: John Moxley

Reviewer: Guangyue LIU

Laboratory Supervisor: Jose C. Danino

ENVIROFORMS/INORGANIC CLP

1
INORGANIC ANALYSIS DATA SHEETSAMPLE NO.
B07KQ4

M12236

Lab Name: DataChem Laboratories

Contract: WHC

Lab Code: DATAC

Case No.: WHC41

SAS No.:

SDG No.: WHCI41

Matrix (soil/water): SOIL

Lab Sample ID: CLP12236

Level (low/med): LOW

Date Received: 02/13/93

% Solids: 85.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7410			P
7440-36-0	Antimony	10.5	U	N	P
7440-38-2	Arsenic	3.4		NS	FM
7440-39-3	Barium	128		N	P
7440-41-7	Beryllium	0.23	U		P
7440-43-9	Cadmium	0.70	U		P
7440-70-2	Calcium	4100			P
7440-47-3	Chromium	16.8		N	P
7440-48-4	Cobalt	9.5	B		P
7440-50-8	Copper	40.7		N*	P
7439-89-6	Iron	39000		*	P
7439-92-1	Lead	216			FM
7439-95-4	Magnesium	3690			P
7439-96-5	Manganese	422		N	P
7439-97-6	Mercury	0.12	U	N	CV
7440-02-0	Nickel	23.4		*	P
7440-09-7	Potassium	1550			P
7782-49-2	Selenium	0.35	B		FM
7440-22-4	Silver	0.70	U		P
7440-23-5	Sodium	175	B		P
7440-28-0	Thallium	0.18	B	W	FM
7440-62-2	Vanadium	45.3			P
7440-66-6	Zinc	144		N*	P
	Cyanide				NR

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: COLORLESS

Clarity After:

Artifacts:

Comments:



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

Page 1 of 2

Part 1 of 1

Date _____

Agency Identification Number SX-0050-EJ

~~ACCOUNT~~ No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 A
Richland, WA 99352
Attention: Briana Colley



Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993

Date Samples Received at Laboratory February 13, 1993

Analytical Results

[illegible]

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

1 Analyses completed on or before this date.

** Parameter not analyzed (See comment page).

() Parameter between LOD and LOQ.

Method Reference (See comments page.)

Analyst: ~~Bebbie A. Christensen~~

Reviewer: Shawn K. Ludlow

Laboratory Supervisor: Norman K. Christensen

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700

9613455.3002



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

Page 1 of 2

Part 1 of 1

Date _____

Agency Identification Number SX-0050-EJAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley



Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 10, 1993Date Samples Received at Laboratory February 13, 1993

Analytical Results

Parameter Name	Field Number	Lab Number	QC-1844-1	QC-1844-1	BL-1844-1	BL-1844-1	B07KQ4	CLP 12236	B07KQ4MS	CLP 12236MS	Limit of Detection
Analysis Date Units											
Method Prep Method											
Total Petroleum Hydrocarbons											
03/08/1993											
418.1 [1] 3550 [2]			110		ND*		ND*		150		10

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

† Analytes completed on or before this date.

** Parameter not analyzed (See comment page).

[] Parameter between LOD and LOQ.

[] Method Reference (See comments page.)

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 6/7/93

Analyst: Lex J. PearceReviewer: David W. ThomasLaboratory Supervisor: Michael P. Beesley

Suzanne W. Beave for MPB
 Laboratory Supervisor: Michael P. Beesley

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
 A Sorenson Company

9613455.3003

ATTACHMENT 3

ASSOCIATED BLANK DATA SUMMARY

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: DATA CHEM LABS Contract: 3534

Lab Code: DATA C Case No.: WHC41 SAS No.: _____ SDG No.: WHCO41

Matrix: (soil/water) SOIL Lab Sample ID: CLPBK0221

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ZY13BK0221

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) N Date Extracted: 02/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/01/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

CAS NO.

COMPOUND

108-95-2-----	Phenol	330	U
111-44-4-----	bis(2-Chloroethyl) Ether	330	U
95-57-8-----	2-Chlorophenol	330	U
541-73-1-----	1,3-Dichlorobenzene	330	U
106-46-7-----	1,4-Dichlorobenzene	330	U
95-50-1-----	1,2-Dichlorobenzene	330	U
95-48-7-----	2-Methylphenol	330	U
108-60-1-----	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5-----	4-Methylphenol	330	U
621-64-7-----	N-Nitroso-Di-n-Propylamine	330	U
67-72-1-----	Hexachloroethane	330	U
98-95-3-----	Nitrobenzene	330	U
78-59-1-----	Isophorone	330	U
88-75-5-----	2-Nitrophenol	330	U
105-67-9-----	2,4-Dimethylphenol	330	U
111-91-1-----	bis(2-Chloroethoxy) Methane	330	U
120-83-2-----	2,4-Dichlorophenol	330	U
120-82-1-----	1,2,4-Trichlorobenzene	330	U
91-20-3-----	Naphthalene	330	U
106-47-8-----	4-Chloroaniline	330	U
87-68-3-----	Hexachlorobutadiene	330	U
59-50-7-----	4-Chloro-3-Methylphenol	330	U
91-57-6-----	2-Methylnaphthalene	330	U
77-47-4-----	Hexachlorocyclopentadiene	330	U
88-06-2-----	2,4,6-Trichlorophenol	330	U
95-95-4-----	2,4,5-Trichlorophenol	800	U
91-58-7-----	2-Chloronaphthalene	330	U
88-74-4-----	2-Nitroaniline	800	U
131-11-3-----	Dimethyl Phthalate	330	U
208-96-8-----	Acenaphthylene	330	U
606-20-2-----	2,6-Dinitrotoluene	330	U
99-09-2-----	3-Nitroaniline	800	U
83-32-9-----	Acenaphthene	330	U

W. J. Jones
6/17/93

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Lab Name: DATA CHEM LABS Contract: 3534

Lab Code: DATA C Case No.: WHC41 SAS No.: _____ SDG No.: WHCO41

Matrix: (soil/water) SOIL Lab Sample ID: CLPBK0221

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ZY13BK0221

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) N Date Extracted: 02/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/01/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>	Q
51-28-5-----	2,4-Dinitrophenol	800	U
100-02-7-----	4-Nitrophenol	800	U
132-64-9-----	Dibenzofuran	330	U
121-14-2-----	2,4-Dinitrotoluene	330	U
84-66-2-----	Diethylphthalate	330	U
7005-72-3-----	4-Chlorophenyl-phenylether	330	U
86-73-7-----	Fluorene	330	U
100-01-6-----	4-Nitroaniline	800	U
534-52-1-----	4,6-Dinitro-2-Methylphenol	800	U
86-30-6-----	N-Nitrosodiphenylamine (1)	330	U
101-55-3-----	4-Bromophenyl-phenylether	330	U
118-74-1-----	Hexachlorobenzene	330	U
87-86-5-----	Pentachlorophenol	800	U
85-01-8-----	Phenanthrene	330	U
120-12-7-----	Anthracene	330	U
86-74-8-----	Carbazole	330	U
84-74-2-----	Di-n-Butylphthalate	480 48	J
206-44-0-----	Fluoranthene	330	U
129-00-0-----	Pyrene	330	U
85-68-7-----	Butylbenzylphthalate	330	U
91-94-1-----	3,3'-Dichlorobenzidine	330	U
56-55-3-----	Benzo (a) Anthracene	330	U
218-01-9-----	Chrysene	330	U
117-81-7-----	bis (2-Ethylhexyl) Phthalate	330	U
117-84-0-----	Di-n-Octyl Phthalate	330	U
205-99-2-----	Benzo (b) Fluoranthene	330	U
207-08-9-----	Benzo (k) Fluoranthene	330	U
50-32-8-----	Benzo (a) Pyrene	330	U
193-39-5-----	Indeno (1,2,3-cd) Pyrene	330	U
53-70-3-----	Dibenz (a,h) Anthracene	330	U
191-24-2-----	Benzo (g,h,i) Perylene	330	U

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SBLK01

Lab Name: DATA CHEM LABS Contract: 3534

Lab Code: DATA C Case No.: WHC41 SAS No.: _____ SDG No.: WHCO41

Matrix: (soil/water) SOIL Lab Sample ID: CLPBK0221

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ZY13BK0221

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) N Date Extracted: 02/21/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/01/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: _____

Number TICs found: 6CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.	ALDOL CONDENSATION PRODUCT	9.65	1300	AJ
2.	ALDOL CONDENSATION PRODUCT	10.28	550	AJ
3.	ALDOL CONDENSATION PRODUCT	10.50	180	AJ
4.	ALDOL CONDENSATION PRODUCT	11.20	240	AJ
5.	ALDOL CONDENSATION PRODUCT	11.55	410	AJ
6.	HEXANEDIOIC ACID, C8 ESTER	29.30	150	J

Q
R
R
R
R
R

[Signature]
6/17/93

9613455.3007

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK1S

Lab Name: DATACHEM LABORATORIES Contract: 3534

Lab Code: DATAC Case No. WHC41 SAS No.: SDG No.: WHC041

Matrix: (soil/water) SOIL Lab Sample ID: SX-0050-SBK1

Sample wt/vol: 30.0 (g/ml) G Lab File ID:

% Moisture: 0 decanted: (Y/N) N Date Received: / /

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 2/22/93

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 3/12/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg) UG/KG	Q
319-84-6-----	alpha-BHC	1.7	U
319-85-7-----	beta-BHC	1.7	U
319-86-8-----	delta-BHC	1.7	U
58-89-9-----	gamma-BHC (Lindane)	1.7	U
76-44-8-----	Heptachlor	1.7	U
309-00-2-----	Aldrin	1.7	U
1024-57-3-----	Heptachlor epoxide	1.7	U
959-98-8-----	Endosulfan I	1.7	U
60-57-1-----	Dieldrin	3.3	U
72-55-9-----	4,4'-DDE	3.3	U
72-20-8-----	Endrin	3.3	U
33213-65-9----	Endosulfan II	3.3	U
72-54-8-----	4,4'-DDD	3.3	U
1031-07-8-----	Endosulfan sulfate	3.3	U
50-29-3-----	4,4'-DDT	3.3	U
72-43-5-----	Methoxychlor	31.5 (6.3)	JP
53494-70-5----	Endrin ketone	3.3	U
7421-36-3-----	Endrin aldehyde	3.3	U
5103-71-9-----	alpha-Chlordane	1.7	U
5103-74-2-----	gamma-Chlordane	1.7	U
8001-35-2-----	Toxaphene	170.	U
12674-11-2----	Aroclor-1016	33.	U
11104-28-2----	Aroclor-1221	67.	U
11141-16-5----	Aroclor-1232	33.	U
53469-21-9----	Aroclor-1242	33.	U
12672-29-6----	Aroclor-1248	33.	U
11097-69-1----	Aroclor-1254	33.	U
11096-82-5----	Aroclor-1260	33.	U

FORM I PEST

3/90

ENVIROFORMS/INORGANIC CLP

3
BLANKS

Lab Name: DataChem Laboratories

Contract: WHC

Lab Code: DATAC

Case No.: WHC41

SAS No.:

SDG No.: WHCI41

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	14.0	U	14.0	U	-20.4	B	14.0	U	5x 2.800	U	P
Antimony	45.0	U	45.0	U	45.0	U	45.0	U	9.000	U	P
Arsenic	1.0	U	1.0	U	1.0	U	1.0	U	0.100	U	FM
Barium	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	P
Beryllium	-1.2	B	1.0	U	1.6	B	1.0	U	0.200	U	P
Cadmium	-3.7	B	3.0	U	3.0	U	3.0	U	0.600	U	P
Calcium	15.0	U	15.0	U	17.8	B	-55.6	B	22.852	B	P
Chromium	4.0	U	4.0	U	4.0	U	4.0	U	0.800	U	P
Cobalt	6.0	U	6.0	U	6.0	U	6.0	U	1.200	U	P
Copper	-6.9	B	-6.9	B	5.8	B	4.0	U	-0.943	B	P
Iron	15.0	U	15.0	U	-24.1	B	-36.9	B	3.000	U	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	0.100	U	FM
Magnesium	22.0	U	-23.8	B	-34.4	B	-23.8	B	4.843	B	P
Manganese	1.0	U	1.0	U	1.3	B	1.0	U	0.200	U	P
Mercury	0.2	U	0.2	U	0.2	U			0.100	U	CV
Nickel	19.0	U	19.0	U	19.0	U	19.0	U	3.800	U	P
Potassium	-487.5	B	432.0	U	432.0	U	432.0	U	86.400	U	P
Selenium	2.0	U	2.0	U	2.0	U			1.2 (0.241)	B	FM
Silver	3.0	U	3.0	U	3.0	U	3.0	U	0.600	U	P
Sodium	16.0	U	16.0	U	16.0	U	-16.2	B	31.419	B	P
Thallium	1.0	U	1.0	U	1.0	U			0.100	U	FM
Vanadium	4.0	U	4.0	U	4.0	U	4.0	U	-1.094	B	P
Zinc	8.1	B	8.1	B	9.4	B	6.8	B	1.200	U	P
Cyanide											NR

MEMORANDUM

TO: North Slope ERA Data Validation Project QA Record

June 22, 1993

FR: Susan Winter, Golder Associates Inc. *Winter*

RE: Data Validation Summary for Data Package: B07KR4-DAT-232

INTRODUCTION

This memo presents the results of data validation on data package B07KR4-DAT-232 consisting of four (4) soil samples submitted for metals, general chemistry and total recoverable petroleum hydrocarbon analyses. The samples were analyzed by the DataChem laboratory using SW-846 methods. The following table describes the samples validated, sample date and analyses performed.

SAMPLE ID	SAMPLE DATE	METALS	GENERAL CHEMISTRY	TPH
B07KR4	02/16/93	X	X	
B07KR9	02/17/93	X		X
B07KS0	02/17/93	X		X
B07KS1	02/17/93	X		X

Data validation was conducted in accordance with the WHC statement of work (WHC 1993) and validation procedures (Bechtold 1992) in which twenty percent (20%) of the samples were assigned for validation. This data package was assigned for full validation.

Attachments 1 through 3 to this memo provide a data qualification summary, a summary of the validated results, and data validation supporting documentation.

DATA QUALITY OBJECTIVES

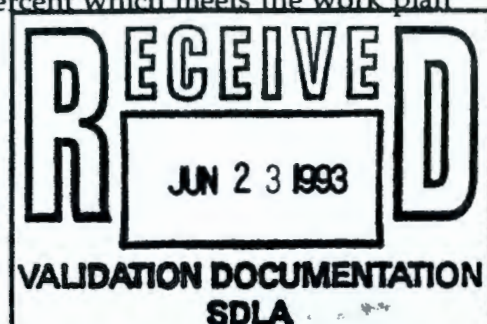
Precision. Goals for precision were met with the exception of the duplicate relative percent difference as summarized under "Minor Deficiencies".

Accuracy. Goals for accuracy were met with the exception of the matrix spike and laboratory control samples as summarized under "Major Deficiencies" and "Minor Deficiencies".

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses. Four (4) samples were validated in this data set with a total of 133 determinations reported, of which 129 were deemed valid. This results in a completeness of 97 percent which meets the work plan objectives of 90%.



MAJOR DEFICIENCIES

The following presents a summary of the rejected data.

The matrix spike percent recovery (MS %R) for copper was -875%. Therefore, all associated sample results have been qualified as unusable (R).

MINOR DEFICIENCIES

The following qualifications were required as a result of the data validation.

Metals

The MS %R for beryllium, aluminum, barium, arsenic, selenium and lead were out of the control limits of 75% and 125%. Therefore, all associated sample results have been qualified as estimated (J for detects, UJ for non-detects).

The laboratory control sample percent recoveries (LCS %R) for arsenic and selenium were out of the control limits of 80% and 120%. Therefore, the associated sample results have been qualified as estimated (J for detects, UJ for non-detects).

General Chemistry

The phosphate analysis for sample B07KR4 was performed out of the required holding time. Therefore, the associated sample result has been qualified as estimated (UJ).

The duplicate relative percent difference (RPD) for chloride was out of the control limits. Therefore, the associated sample result has been qualified as estimated (J).

Total Recoverable Petroleum Hydrocarbons

No deficiencies were identified requiring qualification of data.

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Task Order G-93-01-58. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company,, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613455.3011

ATTACHMENT 1

DATA QUALIFICATION SUMMARY

B07KR4-DAT-232

B-7

DATA QUALIFICATION SUMMARY - FORM B-7

B07KR4-DAT-232

[illegible]

9613455.3014

ATTACHMENT 2

VALIDATED DATA SUMMARY

9613455.3015



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

Page 1 of 4

Part 1 of 1

MAR 11 1993

Date

Agency Identification Number S93-0091-AI

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site

Date of Collection February 16, 1993

Date Samples Received at Laboratory February 22, 1993



Analytical Results

Parameter Name	Analysis Date	Units	Method	Prep Method	Field Number	Lab Number	B07KR4 EM 0388	B07KR9 EM 0389	B07KS0 EM 0390	B07KS1 EM 0391	Limit of Detection
Aluminum (Al)	03/08/1993	µg/gram					7100	6500	7700	7400	20
6010 [1]	3050 [1]										
Antimony (Sb)	03/08/1993	µg/gram					ND*	ND*	ND*	ND*	20
6010 [1]	3050 [1]										
Arsenic (As)	03/08/1993	µg/gram					ND*	ND*	ND*	ND*	50
6010 [1]	3050 [1]										
Barium (Ba)	03/08/1993	µg/gram					59.	90.	100	92.	2.
6010 [1]	3050 [1]										
Beryllium (Be)	03/08/1993	µg/gram					ND*	ND*	ND*	ND*	1.
6010 [1]	3050 [1]										
Cadmium (Cd)	03/08/1993	µg/gram					ND*	ND*	1.	ND*	1.
6010 [1]	3050 [1]										
Calcium (Ca)	03/08/1993	µg/gram					3200	10000	9100	9200	10
6010 [1]	3050 [1]										
Chromium (Cr)	03/08/1993	µg/gram					11.	12.	14.	13.	2.
6010 [1]	3050 [1]										

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

1 Analyses completed on or before this date.

** Parameter not analyzed (See comment page).

() Parameter between LOD and LOQ.

[] Method Reference (See comments page.)

Analyst: Loren P. Higby

Reviewer: John T. Kershner

Laboratory Supervisor: Brent E. Stephens

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

9613455.3016



ENVIRONMENTAL SOIL REPORT

Form EPRS-B

Page 2 of 4

Part 1 of 1

Date MAR 11 1993Agency Identification Number S93-0091-AIAccount No. 3534C

Analytical Results

Parameter Name	Analysis Date	Units	Method	Prep Method	Field Number	Lab Number	B07KR4 EM 0388	B07KR9 EM 0389	B07K50 EM 0390	B07K51 EM 0391	Limit of Detection
Cobalt (Co)	03/08/1993	µg/gram	6010 [1]	3050 [1]			6.	6.	7.	8.	2.
Copper (Cu)	03/08/1993	µg/gram	6010 [1]	3050 [1]			10	31.	29.	23.	2.
Iron (Fe)	03/08/1993	µg/gram	6010 [1]	3050 [1]			16000	18000	19000	28000	10
Lead (Pb)	03/08/1993	µg/gram	6010 [1]	3050 [1]			ND*	690	930	70	10
Lithium (Li)	03/08/1993	µg/gram	6010 [1]	3050 [1]			8.	6.	6.	7.	2.
Magnesium (Mg)	03/08/1993	µg/gram	6010 [1]	3050 [1]			4000	3900	4300	4200	10
Manganese (Mn)	03/08/1993	µg/gram	6010 [1]	3050 [1]			250	240	250	350	1.
Molybdenum (Mo)	03/08/1993	µg/gram	6010 [1]	3050 [1]			ND*	ND*	ND*	ND*	5.
Nickel (Ni)	03/08/1993	µg/gram	6010 [1]	3050 [1]			10.	9.	11.	11.	3.
Phosphorus (P)	03/08/1993	µg/gram	6010 [1]	3050 [1]			530	890	860	760	50
Potassium (K)	03/08/1993	µg/gram	6010 [1]	3050 [1]			1300	1200	1400	1400	200
Selenium (Se)	03/08/1993	µg/gram	6010 [1]	3050 [1]			ND*	ND*	ND*	ND*	10
Silver (Ag)	03/08/1993	µg/gram	6010 [1]	3050 [1]			ND*	ND*	ND*	ND*	2.
Sodium (Na)	03/08/1993	µg/gram	6010 [1]	3050 [1]			220	320	440	270	20
Strontium (Sr)	03/08/1993	µg/gram	6010 [1]	3050 [1]			19.	41.	37.	31.	2.

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

1 Analyses completed on or before this date.

** Parameter not analyzed (See comments page).

() Parameter between LOD and LOQ.

[] Method Reference (See comments page).

 6/18/93
 [Signature]



ENVIRONMENTAL SOIL REPORT

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Part 1 of 1

Date MAR 11 1993

Agency Identification Number S93-0091-AI

Account No. 3534C

Analytical Results

[illegible]

* See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

¹ Analyses completed on or before this date.

** Parameter not analyzed (See comments page)

() Parameter between LOD and LOQ.

[] Method Reference (See comments page)

9613455.3018



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

Page 1 of 3

Part 1 of 2

MAR 12 1993

Date

Agency Identification Number S93-0091-BI

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site

Date of Collection February 16, 1993

Date Samples Received at Laboratory February 22, 1993



Analytical Results

Parameter Name	Analysis Date	Units	Method	Prep Method	Field Number	Lab Number	QC-2197-1	QC-2197-1	BL-2197-1	BL-2197-1	B07XR4	EM 0388	B07XR4MS	EM 0388MS	B07XR4MD	EM 0388MD	B07XR9	EM 0389	B07XS0	EM 0390
Arsenic (As)	03/04/1993																			
7060 [1]	3050 [1]	µg/g					1100		ND*		1.8		4.7		1.1		ND*		3.1	
Lead (Pb)	03/09/1993																			
7421 [1]	3050 [1]	µg/g					260		ND*		4.3		7.5		4.6		1200		760	
Selenium (Se)	03/04/1993																			
7740 [1]	3050 [1]	µg/g					28.		ND*		ND*		0.6		ND*		ND*		ND*	
Thallium (Tl)	03/08/1993																			
7841 [1]	3050 [1]	µg/g					34.		ND*		ND*		5.0		ND*		ND*		ND*	

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

1 Analyses completed on or before this date.

** Parameter not analyzed (See comment page.)

() Parameter between LOD and LOQ.

[] Method Reference (See comments page.)

RECORDED

Kristie Bitner
Analyst: Kristie F. Bitner

Tanya Cheklin
Reviewer: Tanya Cheklin

Brent E. Stephens
Laboratory Supervisor: Brent E. Stephens

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A Sorenson Company

9613455.3019



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

Page 2 of 3

Part 2 of 2

MAR 12 1993

Date

Agency Identification Number S93-0091-BI

Account No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 16, 1993

Date Samples Received at Laboratory February 22, 1993

Analytical Results

Parameter Name	Analysis Date	Units	Method	Prep Method	Field Number	Lab Number	B07KS1	EM 0391	Limit of Detection
Arsenic (As)	03/04/1993								0.5
7060 [1]	3050 [1]	µg/g					2.1		
Lead (Pb)	03/09/1993								0.3
7421 [1]	3050 [1]	µg/g					120		
Selenium (Se)	03/04/1993								0.5
7740 [1]	3050 [1]	µg/g					ND*		
Thallium (Tl)	03/08/1993								0.5
7841 [1]	3050 [1]	µg/g					ND*		

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

* Analyses completed on or before this date.

** Parameter not analyzed (See comment page).

() Parameter between LOD and LOQ.

[] Method Reference (See comments page.)



ENVIRONMENTAL SOIL REPORT

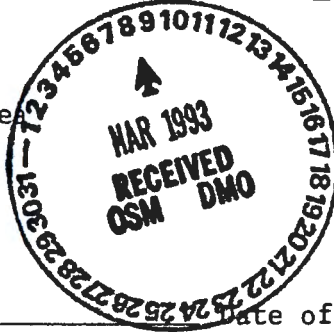
Form EPRS-A

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Part 1 of 2

Date MAR 04 1993Agency Identification Number S93-0091-CIAccount No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley



Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 16, 1993Date Samples Received at Laboratory February 22, 1993

Analytical Results

Parameter Name	Field Number	Lab Number	BL-2198-1	QC-2198-1	B07KR4	B07KR4MD	B07KR4MS	B07KR9	B07KS0	
Analysis Date	Units		BL-2198-1	QC-2198-1	EM 0388	EM 0388MD	EM 0388MS	EM 0389	EM 0390	
Method	Prep Method									
Mercury (Hg)										
03/01/1993	µg/g		ND*	13.	ND*	ND*	0.59	0.09	ND*	
7471 [1]										

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

† Analyses completed on or before this date.

** Parameter not analyzed (See comment page).

() Parameter between LOD and LOQ.

() Method Reference (See comments page.)

David Wheeler
Analyst: David L. Wheeler

Kristie Bitner
Reviewer: Kristie P. Bitner

Brent E. Stephens
Laboratory Supervisor: Brent E. Stephens

9613455.3021



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

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Part 2 of 2

MAR 04 1993

Date _____

Agency Identification Number S93-0091-CIAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 16, 1993Date Samples Received at Laboratory February 22, 1993

Analytical Results

Parameter Name	Field Number	Lab Number	Analysis Date	Units	Method	Prep Method	Limit of Detection
Mercury (Hg)	B07KS1	EM 0391	03/01/1993	µg/g	ND*		0.05
7471 [1]							

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

1 Analyses completed on or before this date.

** Parameter not analyzed (See comment page).

() Parameter between LOD and LOQ.

[] Method Reference (See comments page.)

9613455.3022



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

Page 1 of 2

Part 1 of 1

MAR 17 1993

Date

Agency Identification Number S93-0091-DI

No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley



Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 16, 1993

Date Samples Received at Laboratory February 22, 1993

Analytical Results

Parameter Name	Field Number	Lab Number	B07KR4	EM 0388						Limit of Detection
Analysis Date	Units									
Method	Prep Method									
Fluoride (F)										
02/26/1993	µg/g	ND*								1.
300.0 [1]										
Chloride (Cl)										
02/26/1993	µg/g	20.								1.
300.0 [1]										
Phosphate (PO ₄ -P)										
02/26/1993	µg/g	ND*								2.
300.0 [1]										
Sulfate (SO ₄)										
02/26/1993	µg/g	20.								1.
300.0 [1]										
Nitrates (NO ₃ -N + NO ₂ -N)										
03/08/1993	µg/g	1.								1.
353.2 [1]										
Chromium VI										
02/24/1993	µg/g	2.								1.
7196 [2]	3060 [2]									

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

Analyses completed on or before this date.

** Parameter not analyzed (See comment page).

() Parameter between LOD and LOQ.

[] Method Reference (See comments page)

Analyst: Jennifer K. Richerson

Reviewer: Katherine Kellersberger

Laboratory Supervisor: Michael P. Beesley

9613455.3023



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

Page 1 of 2

Part 1 of 1

Date MAR 22 1993Agency Identification Number S93-0091-EIAccount No. 3534C

Westinghouse Hanford Company
 2355 Stevens Drive
 MSIN H4-23 345 Hill Street/300 Area
 Richland, WA 99352
 Attention: Briana Colley

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection February 16, 1993Date Samples Received at Laboratory February 22, 1993

Analytical Results

Parameter Name	Analysis Date	Units	Method	Prep Method	Field Number	Lab Number	B07KR9	B07KS0	B07KS1	B07KS1MD	Limit of Detection
Total Petroleum Hydrocarbons	03/08/1993	µg/g					60000	65000	940	930	10
418.1 [1]	3550 [2]						✓	✓	✓	✓	

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

1 Analyses completed on or before this date.

** Parameter not analyzed (See comment page).

() Parameter between LOD and LOQ.

[] Method Reference (See comments page.)

Analyst: Alex J. PearceReviewer: David W. ThomasLaboratory Supervisor: Suzanne W. Bowe for MPB
Michael P. Begsley

9613455.3024

ATTACHMENT 3

DATA VALIDATION SUPPORTING DOCUMENTATION

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: <i>North Slope</i>	REVIEWER: <i>[Signature]</i>	DATE: <i>6/21/93</i>
LABORATORY: <i>Data Chem</i>	CASE:	SDG: <i>B07KR4-</i>
SAMPLES/MATRIX:		<i>0AT-232</i>
<i>B07KR4</i>	<i>Soil</i>	
<i>B07KR9</i>		
<i>B07K50</i>		
<i>B07K51</i>		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Performed? Present? <i>6/21/93</i>	Yes	No	N/A
Case Narrative		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cover Page		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Traffic Reports		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inorganic Analysis Data Sheets		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standards Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Initial and Continuing Calibration Verification		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CRDL Standard for AA and ICP		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
QC Summary		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanks		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Interference Check Summary <i>A only</i>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spike Sample Recovery		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Post-Digestion Spike Sample Recovery		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duplicate		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laboratory Control Sample		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standard Addition Results		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Serial Dilutions		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instrument Detection Limits		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Interelement Correction Factors		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Linear Ranges		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preparation Log		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analysis Run Log		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Raw Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Raw Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Furnace AA Raw Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mercury Raw Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cyanide Raw Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal laboratory chain-of-custody		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laboratory Sample Preparation Records		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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<u>Data Package Item</u>	<u>Present?:</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>
Percent Solids Analysis Records		—	/	—
Reduction Formulae		—	/	—
Instrument Run Logs		/	—	—
Chemist Notebook Pages		—	/	—

2. HOLDING TIMES

Have all samples been analyzed within holding times? Yes No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? Yes No N/A

Are the correlation coefficients ≥ 0.995 ? Yes No N/A

Was a midrange cyanide standard distilled? Yes No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results > IDL as estimated (J) and results < IDL as estimated (UJ), if the correlation coefficient is < 0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? *See comments* Yes No N/A

Are the AB solution %R values within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks?

Yes ☒ No ☐ N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks?

Yes ☐ No ☒ N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits?

Yes ☐ No ☒ N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits?

Yes ☐ No ☒ N/A

Are there calculation errors?

Yes ☐ No ☒ N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

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10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits?

Yes

No

N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable?

Yes

No

N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable?

See comments

Yes

No

N/A

Is there evidence of negative interference?

Yes

No

N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits?

Yes

No

N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits?

Yes

No

N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections?

Yes

No

N/A

Are applicable duplicate injection RSD values within control?

Yes

No

N/A

If no, were samples rerun once as required?

Yes

No

N/A

Does the RSD for the rerun fall within the control limits?

Yes

No

N/A

Were analytical spike recoveries within the control limits?

See comments

Yes

No

N/A

If no, were MSA analyses performed when required?

Yes No N/A

Are MSA correlation coefficients ≥ 0.995 ?

Yes No N/A

If no, was a second MSA analysis performed?

Yes No N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is $< 40\%$ qualify detects as estimated (J). If the analytical spike recovery is $\geq 10\%$ but $< 40\%$, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is $< 10\%$, reject all nondetects (R). If the sample absorbance is $< 50\%$ of the analytical spike absorbance and the analytical spike recovery is $< 85\%$ or $> 115\%$, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correlation coefficient was < 0.995 , qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?

Yes No N/A

Are results within the calibrated range of the instruments and within the linear range of the ICP?

Yes No N/A

Are all detection limits below the CRQL?

Yes No N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?

Yes No N/A

Were project specific data quality objectives met for this analysis?

Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

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COMMENTS (attach additional sheets as necessary):

These samples were analyzed according to USEPA SW-846 Protocol - not EPA-CLO ~~pot~~ protocol.

The ICP Interference check sample A (ICS-A) was analyzed at the beginning and end of the sample run. However ICP ICS-AB was not analyzed. Therefore the ICS-AB 2R could not be determined. No qualification is required.

The ICP Serial dilution was not performed. No qualification is required for this. 06/18/93

A matrix spike sample was performed in place of a GFAA Analytical Spike. The MS 2R for arsenic and selenium were less than 75% and for lead was greater than 125%. The appropriate qualifications have been applied (T/L).

06/18/93

HOLDING TIME SUMMARY - FORM B-1

B07KR4-DAT-232

SDG:	REVIEWER: <i>[Signature]</i>	DATE: 6/21/93	PAGE 1 OF 1				
COMMENTS: Metals							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KR4	ICP	2/16/93		3/08/93		20	None
B07KR9	↓	2/17/93		↓		19	↓
B07KS0	↓	↓		↓		19	↓
B07KS1	↓	↓		↓		19	↓
B07KR4	GEAA	2/16/93		3/04/93 3/08/93 3/09/93		16 20 21	None
↓ R9	↓	2/17/93		↓ ↓ ↓		15 19 20	↓
↓ S0	↓	↓		↓ ↓ ↓		↓ ↓ ↓	↓
↓ S1	↓	↓		↓ ↓ ↓		↓ ↓ ↓	↓
B07KR4	Hg	2/16/93		3/01/93		13	None
↓ R9	↓	2/17/93		↓		12	↓
↓ S0	↓	↓		↓		↓	↓
↓ S1	↓	↓		↓		↓	↓

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ACCURACY DATA SUMMARY - FORM B-4

B07KR4-DAT-232

SDG: B07KR4	REVIEWER: <i>[Signature]</i>	DATE: 6/17/93	PAGE 1 OF 2	
COMMENTS: ICP Matrix Spike Percent Recoveries				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
Emo258 *	Ag	95	None	None
	Cd	104	None	↓
	Be	68	All	UT
	Fe	97	None	None
	Al	64	All	J
	Ba	28	All	J
	Cr	98	None	None
	Cu	-875	All	R
	Sb	93	None	None
	Co	97		
	Mn	92		
	Ni	100		
	V	95		
↓	Zn	95	↓	↓
*Sample Emo258 was not included in this data package, therefore, the Field number is not available.				
ALL Samples = B07KR4, B07KR9, B07K50, and B07K51.				

ACCURACY DATA SUMMARY - FORM B-4

B07KR4-DAT-232

SDG:	REVIEWER: <i>Wito</i>	DATE: 6/21/93	PAGE 2 OF 2	
COMMENTS: GFAA and Hg MS 20R				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B07KR4 MS	Arsenic	72	B07KR4	1.8 J
	↓	↓	B07KR9	uJ
	↓	↓	B07K50	3.1 J
	↓	↓	B07K51	2.1 J
	Selenium	58	B07KR4	uJ
	↓	↓	B07KR9	uJ
	↓	↓	B07K50	uJ
	↓	↓	B07K51	uJ
	Thallium	100	B07KR4	None
	↓	↓	B07KR9	↓
	↓	↓	B07K50	↓
	↓	↓	B07K51	↓
	Lead	159	B07KR4	4.3 J
	↓	↓	B07KR9	1200 J
	↓	↓	B07K50	760 J
	↓	↓	B07K51	120 J
↓	Mercury	111	None	None

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ACCURACY DATA SUMMARY - FORM B-4

B07KR4-OAT-232

SDG:	REVIEWER: <i>[Signature]</i>	DATE: 6/17/93	PAGE 1 OF 2	
COMMENTS: ICP Laboratory Control Sample (LCS) 2BR				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
LCS(QC-1479-1)	Ag	122	None	None - all results are ND
	Ba	116		None
	Be	100		
	Cd	99		
	Co	101		
	Cr	100		
	Cu	98		
	Mn	102		
	Ni	99		
	Sb	111		
	V	97		
▽	Zn	95	▽	▽

ACCURACY DATA SUMMARY - FORM B-4

B07KR4-DAT-232

SDG:	REVIEWER: <i>[Signature]</i>	DATE: 6/18/93	PAGE 2 OF 2	
COMMENTS: GFAA ^{& Hg} LCS 2R				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
LCS(QC-2197-1)	Arsenic	123	B07KR4	1.8 J
	↓	↓	B07KR9	None - result is NO
	↓	↓	B07KSO	3.1 J
	↓	↓	B07KSI	2.1 J
	Selenium	70	B07KR4	uJ
	↓	↓	B07KR9	uJ
	↓	↓	B07KSO	uJ
	↓	↓	B07KSI	uJ
	Lead	112	B07KR4	None
	↓	↓	B07KR9	↓
	↓	↓	B07KSO	↓
	↓	↓	B07KSI	↓
	Thallium	88	B07KR4	None
	↓	↓	R9	↓
	↓	↓	SO	↓
	↓	↓	SI	↓
LCS(QC-2198-1)	Mercury	105	None	None

PRECISION DATA SUMMARY - FORM B-5

B07KR4-OAT-232

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SDG:	REVIEWER <i>White</i>	DATE: 6/17/93	PAGE 1 OF 2		
COMMENTS: Laboratory Duplicate RPD (ICP)					
COMPOUND	SAMPLE ID: EM0258	SAMPLE ID: EM0258 Dup	RPD	SAMPLES AFFECTED	QUALIFIER
Al	1256	1141	9.6	None	None
Sb	∅	∅	NA		
As	∅	∅	↓		
Ba	∅	∅	↓		
Be	3	3	∅		
Cd	∅	∅	NA		
Ca	58	65	11		
Cs	∅	∅	NA		
Co	∅	∅	↓		
Cu	795	849	6.6		
Fe	91	86	6		
Pb	∅	∅	NA		
Li	∅	∅	↓		
Mg (OL=10)	16	26	48	within 2x OL None	
Mn	6	7	15	None	
Mo	∅	∅	NA		
Ni	∅	∅	↓		

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PRECISION DATA SUMMARY - FORM B-5

B07KR4-DAT-232

3

SDG:	REVIEWER <i>[Signature]</i>	DATE: 6/17/93	PAGE 2 OF 2		
COMMENTS: Laboratory Duplicate RPD (ICP)					
COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
P	∅	∅	NA	None	None
K	∅	∅	↓	↓	↓
Se	∅	∅	↓	↓	↓
Ag	∅	∅	↓	↓	↓
Na	217247	217515	∅	↓	↓
Sr	∅	∅	NA	↓	↓
Tl	∅	∅	↓	↓	↓
V	∅	∅	↓	↓	↓
Zn	6	6	∅	↓	↓
Sample IDs: B07KR4 B07KR4 Dup					

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PRECISION DATA SUMMARY - FORM B-5

B07KR4-DAT-232

6/21/93
②

SDG:	REVIEWER <i>Winters</i>	DATE: 6/18/93	PAGE 3 OF 3		
COMMENTS: GFAA Duplicate RPD and Mercury Duplicate RPD					
COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
	B07KR4	B07KR4 Dup			
Arsenic (OL=0.5)	1.85	1.12	49	None - within 2x OL	None
Lead (OL=0.3)	4.303	4.591	6	None	None
Selenium (OL=0.5)	∅	∅	NC	None	None
Thallium (OL=0.5)	∅	∅	NC	None	None
Mercury	∅	∅	NC	None	None
NC = Not Calculated					

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WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: <u>North Slope</u>	REVIEW: <u>[Signature]</u>	DATE: <u>6/21/93</u>
LABORATORY: <u>Data Chem</u>	CASE:	SDG: <u>B07KR4-</u>
SAMPLES/MATRIX: <u>Soil</u>		<u>OAT-232</u>
<u>B07KR4 - Anions, Ca^{+6}, NO_2+NO_3</u>		
<u>B07KR9 - TPH</u>		
<u>B07KSO - TPH</u>		
<u>B07KSI - TPH</u>		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item6/21/93
OPPerformed
Present?

Yes No N/A

Case Narrative

✓ | |

Cover Page

✓ | |

Traffic Reports/Chain-of-Custody

✓ | |

Sample Analysis Data Report Forms

✓ | |

Standards Data

✓ | |

QC Summary

Blanks Summary Report Forms

✓ | |

Spike Sample Recovery Report Forms

✓ | |

Duplicate Sample Analysis Report Forms

✓ | |

Laboratory Control Sample Report Forms see comments

✓ | |

Raw Data

Ion Chromatograph Chromatograms

✓ | |

TOC and TOX Instrument Printouts

✓ | |

Laboratory Bench Sheets

✓ | |

Additional Data

Laboratory Sample Preparation Logs

✓ | |

Instrument Run Logs

✓ | |

Internal Laboratory Chain-of-Custody

✓ | |

Percent Solids Analysis Records

✓ | |

Reduction Formulae

✓ | |

Chemist Notebook Pages

✓ | |

2. HOLDING TIMES

Were all samples analyzed within holding times?

Yes No N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used?

☒ Yes No N/A

Are the correlation coefficients ≥ 0.995 ?

☒ Yes No N/A

Was a balance check conducted prior to the TDS analysis?

Yes No ☒ N/A

Was the titrant normality checked?

Yes No ☒ N/A

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency?

☒ Yes No N/A

Are ICV and CCV percent recoveries within control?

☒ Yes No N/A

Are there calculation errors?

Yes ☒ No N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks?

Yes ☒ No N/A

ACTION: Qualify all associated sample results for any analyte < 5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks?

Yes No ☒ N/A

ACTION: Qualify all sample results for any analyte < 5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits?

☒ Yes No N/A

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are $> CRQL$, qualify the data as estimated (J). If the spike recovery is $< 30\%$ and the sample results are less than the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits?

Yes No N/A

Are there calculation errors?

Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits?

Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits?

Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits?

Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits?

Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?

☒ Yes

No

N/A

Are instrument detection limits below the CRDL?

☒ Yes

No

N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?

☒ Yes

No

N/A

Were project specific data quality objectives met for this analysis?

☒ Yes

No

N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

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COMMENTS (attach additional sheets as necessary):

Laboratory control sample percent recoveries were available for nitrate/nitrite and hexavalent chromium, not for the anions. No qualification was required.

[Signature]
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SDG:

REVIEWER:

DATE:

6/21/93

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COMMENTS:

Wet Chemistry & pH

[illegible]

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PRECISION DATA SUMMARY - FORM B-5

B07KRY-DAT-232

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